CLAIMS:

1. A composite material (10) for acoustic or mechanical damping, comprising: a plurality of layers of fibrous material (12) embedded in a structural matrix material (14); a layer (24) of high hysteretic loss material between consecutive layers of fibrous material, said layer (24) of high hysteretic loss material being bonded to the adjacent layers of fibrous material (12) embedded in the structural matrix material (14), characterised in that the layer (24) of high hysteretic loss material is perforated, whereby the structural matrix material (14) is continuous through the perforations (34) between the adjacent layers of fibrous material (12) embedded in a the structural matrix material (14).

2. A composite material according to claim 1 wherein the perforations occupy 5-50% of the area of the layer (24) of high hysteretic loss material.

3. A composite material according to any preceding claim wherein the structural matrix material (14) comprises a resin.

4. A composite material according to any preceding claim wherein the high hysteretic loss material (24) comprises polyurethane film.

5. A composite material according to any preceding claim wherein the fibrous material (12) is glass fibre matting.

6. A composite material according to any preceding claim wherein a pure epoxy/glass fibre, or metal, layer is located on one surface of the composite material.

7. A method for producing a composite material (10) for acoustic or mechanical damping, comprising the steps of:

- providing at least one first, fibrous, layer (12; 26) impregnated with a first structural matrix material (14);

- stacking the at least one first, fibrous, layer on a former;
- providing at least one second layer (24) comprising a material of high hysteretic loss;
- stacking the at least one second layer on the stack of the first, fibrous, layer(s);
- providing at least one third, fibrous, layer impregnated with a second structural matrix material;
- stacking the at least one third layer on the stack of first and second layers; and
- simultaneously heating and compressing the resulting stack of first, second and third layers to cause the material of the second layer(s) to bond with the first and third layers, further comprising the step of perforating (34) the second layer(s) prior to the step of stacking the second layer(s), whereby the structural matrix material (14) is continuous through the perforations (34) between the adjacent layers of fibrous material (12) embedded in the structural matrix material.

8. A method according to claim 7 wherein the step of perforating comprises forming perforations with occupy 5-50% of the area of the second layer(s).

9. A method according to any of claims 7-8 wherein the second layer comprises a film of viscoelastic polymer film material.

10. A method according to any of claims 7-9 wherein the step of heating and compressing is performed by enclosing the stack in a heat-shrinking material, and then heating the stack and the heat-shrinking material.

11. A method according to claim 10 wherein the heat shrinking material is polyamide tape.

12. A method according to any of claims 7-11 wherein the first and/or second structural matrix material comprises an epoxy, polyester or phenolic resin; or polyurethane.

13. A method according to any of claims 7-12 wherein the structural matrix material(s) includes thermo setting material, and the step of heating and compressing is effective to harden the thermosetting material.

14. A method according to any of claims 7-13 wherein the high hysteretic loss layer comprises polyurethane.

15. A method according to any of claims 7-14 wherein the fibrous layers (12) comprise glass fibre matting.

16. A method according to any of claims 7-15 further comprising the step of selecting the direction of the fibres and fibre types in the fibrous layers (12) to provide a desired combination of structural strength, stiffness and damping properties.

17. A method according to any of claims 7-16 further comprising the step of providing a pure epoxy/glass fibre, or metal layer, on one surface of the composite material.

18. A method according to any of claims 7-17, wherein the layer of high hysteretic loss comprises a thermoplastic material, and the heating and compressing step is effective to diffuse or intermingle the thermoplastic material into the structural matrix material.

19. A material substantially as described and/or as illustrated in the accompanying drawings.

20. A method substantially as described.